

REMARKS

Claims 1-42 are now pending in the application. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the remarks contained herein.

Applicant would like to thank the Examiner for courtesy extended during the interview on November 28, 2007. During the interview, the Examiner agreed that the disclosed techniques of the present application for incrementing and decrementing counters with respect to determining actual buffer usage of a network switching device is not disclosed by the applied prior art.

REJECTION UNDER 35 U.S.C. § 103

Claims 1-30 and 40-42 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Fig. 1-3 and paragraphs [0005]-[0009] of the admitted prior art (AAPA) in view of Ren. This rejection is respectfully traversed.

With respect to Claim 1, the AAPA and Ren fail to show, teach or suggest at least a network switching device that includes n counters, as claimed. Each of the claimed n counters increments a count when a respective one of n ingress modules enqueues a buffer to one or more destination channels.

By incrementing a count when buffers are enqueued, a count of actual memory usage can be obtained. Note that the action of incrementing a count is dependent upon the enqueueing of a buffer, not the reception of a frame. The incrementing occurs at the same time or after the enqueueing of a buffer. Also, the enqueueing of a buffer may

include the reserving of the buffer for received data, the obtaining of an address of the buffer, and the assigning of the buffer to one or more output channels.

The Examiner admits that the AAPA fails to disclose the claimed counters and relies on Ren for such disclosure. The Examiner alleges that Ren discloses the incrementing of a counter when a frame is received and thus discloses incrementing a counter when a buffer is enqueued. Applicant, respectfully, disagrees.

Incrementing a counter when a frame is received is not the same as nor does it suggest the incrementing of a counter when a buffer is enqueued. Although a buffer may be enqueued after a frame is received, that does not suggest that a counter is incremented at the same time or after a buffer is enqueued. For example, it appears that the Ethernet switch of Ren enqueues a buffer sometime after a count has been incremented, not vice versa. The Ethernet switch increments a count upon the reception of a frame. Following the incrementing of the count, the Ethernet switch allocates memory, creates an input port index, and assigns an address pointer for the storage of the received frame.

The incrementing procedure in Ren is different than that of the present application, as admitted to by the Examiner during the interview. This difference is set forth in Claim 1, which recites that a count is incremented when a buffer is enqueued. This dependency is not disclosed in Ren. Incrementing in Ren is dependent upon frame reception, as opposed to the enqueueing of a buffer. This dependency difference provides a different end result. The claimed invention allows for a count of actual memory usage. For example, a buffer may or may not be enqueued after a frame is received by a network switching device. A frame may be stored or discarded. Thus, a

buffer is not always enqueued as a result of receiving a frame. The procedure of Ren does not account for discarded frames.

The invention of Claim 1 counts buffer usage, whereas the Ethernet switch of Ren counts frames received. Frames vary in size. Frames may be smaller, equal, or larger in size than the size of a buffer. One or more buffers may be allocated for the storage of a frame. When the size of a frame is smaller than the size of a buffer, a whole buffer is allocated. Thus, a portion of the buffer although allocated is unused. The claimed invention accounts for more efficient usage. The Ethernet switch of Ren counts based on the number of frames received or the size of the frames received. Thus, the Ethernet switch of Ren does not account for allocated and unused memory.

The claimed invention provides more accurate measure of memory usage. Although the amount of memory usage may be related to the number of frames received, performing a count based on frames at best provides an indirect estimate of memory usage. Thus, Ren does not provide the same count as the claimed invention of Claim 1.

It is a longstanding rule that to establish a prima facie case of obviousness of a claimed invention, all of the claim limitations must be taught or suggested by the prior art. *In re Royka*, 180 USPQ 143 (CCPA 1974), see MPEP §2143.03. The references relied upon fail to teach or suggest all of the limitations of Claim 1.

Therefore, Claim 1 is allowable for at least the above reasons

With respect to Claim 1, the AAPA and Ren also fail to at least show, teach or suggest egress modules that exercise flow control on a respective channel when a

count, as claimed in Claim 1, is greater than a pause threshold. Since the AAPA and Ren fail to disclose the claimed incrementing, the AAPA and Ren also fail to disclose flow control based on values of the claimed counters.

Therefore, Claim 1 is allowable for at least the above reasons. Claims 13 and 23 are allowable for at least similar reasons as Claim 1. Claims 2-12, 14-22, 24-30 and 39-42 ultimately depend from Claims 1, 13 and 23 respectively and are allowable for at least similar reasons.

With respect to Claims 40-42, the AAPA and Ren fail to show, teach or suggest at least a pause threshold that is based on a number of available pointers. Applicant submits that it is well known in the art that a pointer refers to an element that is used to indicate the address of a location in memory.

The Examiner alleges that Ren discloses the features of Claims 40-42 and refers to variables Mi and Di disclosed in col. 11, lines 42-43, of Ren. The variable Mi refers to the total amount of buffer space allocated to an input port i. The variable Di refers to a response latency for an input port i. Neither Mi nor Di is used to indicate the address of a location in memory.

Therefore, Claims 40-42 are further allowable for at least the above reasons.

Claims 31-38 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Fig. 1-3 and paragraphs [0005]-[0009] of the admitted prior art AAPA in view of Ren and further in view of Langberg et al. (U.S. Pat. No. 5,852,630). This rejection is respectfully traversed.

With respect to Claim 31, the AAPA, Ren and Langberg fail to at least show, teach or suggest incrementing a count when a buffer is enqueued and causing flow control on a channel when the count is greater than a pause threshold.

The Examiner admits that the AAPA fails to disclose the claimed features of incrementing and flow control and relies on Ren for such disclosure. Applicant has shown that Ren also fails to show the claimed features. Applicant submits that Langberg also fails to disclose the claimed features. As best understood by Applicant, Langberg is directed to a rate adaptive digital subscriber line (RADSL) transceiver warm start activation procedure for enabling a DSL device to establish a communication connection. Langberg is not directed to flow control within a switch.

Therefore, Claim 31 is allowable for at least the above reasons. Claims 32-38 ultimately depend from Claim 31 and are allowable for at least similar reasons.

ALLOWABLE SUBJECT MATTER


The Examiner states that Claim 39 would be allowable if rewritten in independent form. Applicant reserves the right to rewrite these claims into independent form at a later date if needed.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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